

# Acid-Base Stoichiometry

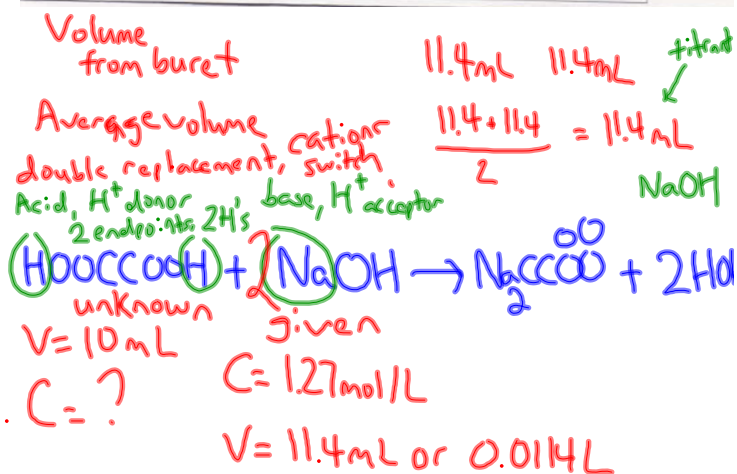
## Titration Involving Endpoints

### Steps:

1. Write the non-ionic equation, after carefully considering the number of endpoints, with all information beneath the equation
2. Find the moles of given using  $C = \frac{n}{V}$
3. Find the moles of unknown by multiplying by the ratio of  $\frac{\text{Unknown coefficient}}{\text{Given coefficient}}$
4. Find the concentration of the unknown using  $C = \frac{n}{V}$

Example: Find the concentration of oxalic acid in rust remover.  
The oxalic acid is titrated with 1.27 mol/L sodium hydroxide.  
The rest of the data is in the table below. (2 endpoints)

TITRATION OF 10.0 mL OF OXALIC ACID WITH SODIUM HYDROXIDE				
Trial	1	2	3	
Final buret reading (mL)	12.1	23.5	34.9	
Initial buret reading (mL)	0.3	12.1	23.5	
Comment on endpoint	overshot	good	good	
Decision	disregard	use	use	



$$n = C \times V = 1.27 \text{ mol/L} \times 0.0114 \text{ L}$$

$$n = 0.0145 \text{ mol NaOH}$$

$$0.0145 \text{ mol NaOH} \times \frac{1 \text{ (unknown)}}{2 \text{ (given)}}$$

$$= 7.24 \times 10^{-3} \text{ mol oxalic acid}$$

$$C = \frac{n}{V} = \frac{7.24 \times 10^{-3} \text{ mol}}{0.01 \text{ L}}$$

$$C = 0.724 \text{ mol/L}$$